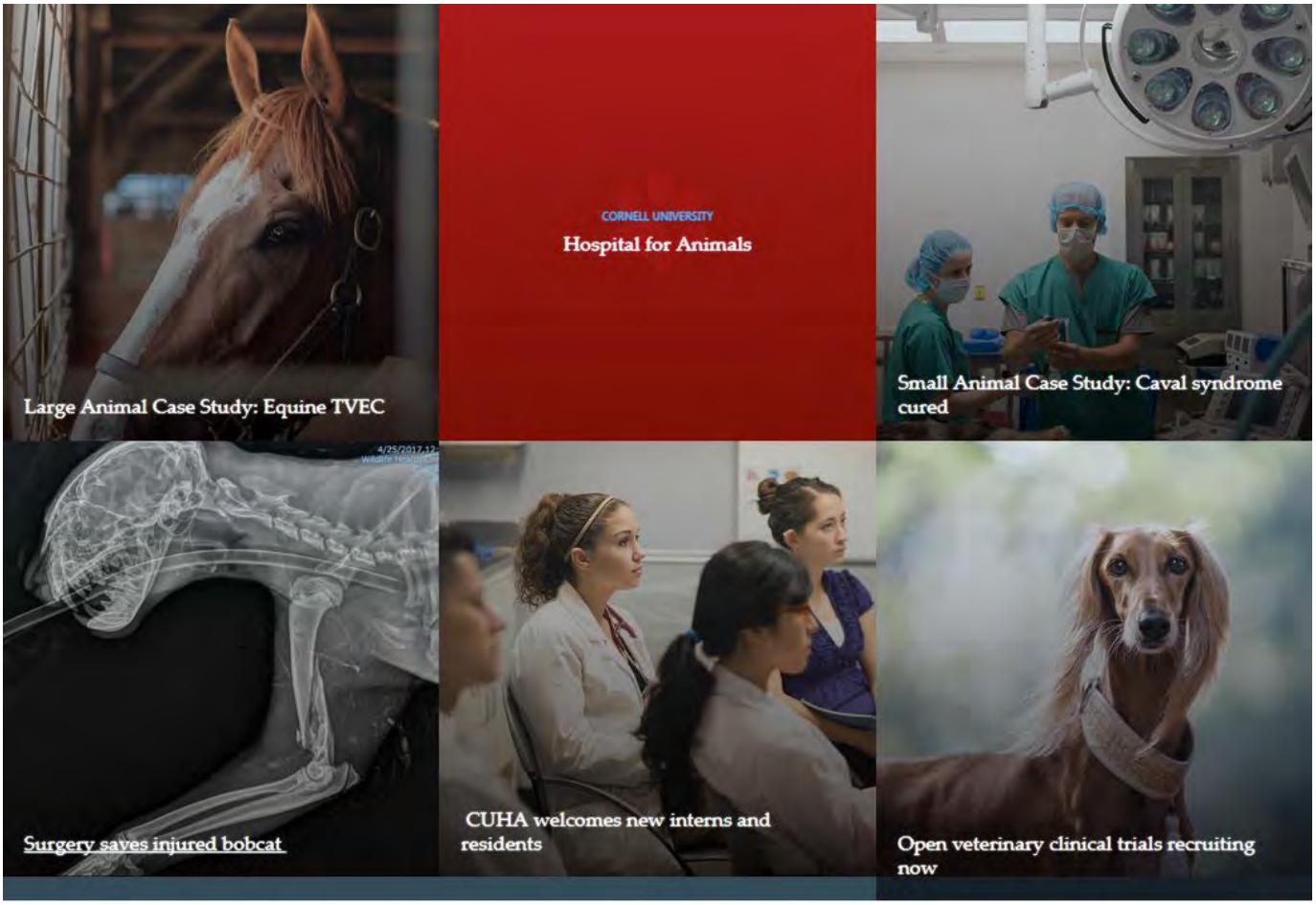
Cornell University
College of Veterinary Medicine

CUHA Beat

September 2017

The pulse of the Cornell University Hospital for Animals



Cornell University
College of Veterinary Medicine

Cornell cardiologists offer advanced treatment for horses with atrial fibrillation

Monday, September 11, 2017 - 12:25pm

When medical treatment fails, cardiologists at the Cornell University College of Veterinary Medicine can now offer a procedure that resets the quivering heart of a horse in atrial fibrillation to bring back its normal heartbeat.

Drs. Romain Pariaut, associate professor and section chief of cardiology and Bruce Kornreich, associate director of the Feline Health Center and staff cardiologist, recently performed a transvenous electrical cardioversion (TVEC) to treat a horse diagnosed with atrial fibrillation (AF), a rapid, irregular heart rhythm that causes decreased blood flow from the heart. This procedure, which involves

carefully placing electrodes into the heart to reset its rhythm with an electric shock, is now available at Cornell to treat horses impacted by this condition.

"I'm very excited to be able to offer this procedure," says Kornreich. "AF is a very common condition in horses that we're often asked to diagnose and treat. This is another tool in our toolbox to convert these patients back to a normal heart rhythm."

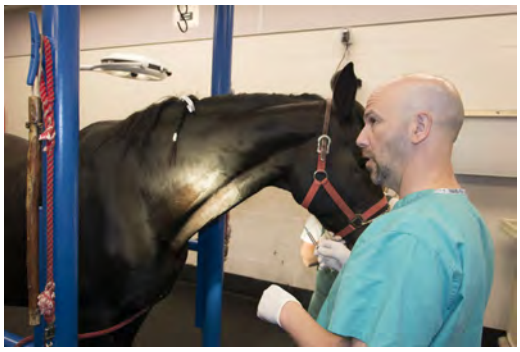
On-Star is prepared for the procedure.

The Equine Hospital had offered TVEC until about five years ago, when the hospital could no longer purchase the catheters needed for the procedure. The catheters recently came back onto the market, around the same time that Cornell vet students examined On-Star, a 19-year-old mare belonging to the teaching herd. "The students picked up the arrhythmia at the Cornell Equine Park and we diagnosed it as AF," says Dr. Gillian Perkins, medical director of the Equine and Nemo Farm Animal Hospital, who coordinated the procedure. "We figured this was the perfect opportunity to practice on one of our own animals so that we could offer the procedure to clients."

Dr. Romain Pariaut prepares for catheter placement.

AF is the most common cause of an irregular heartbeat in horses, and vets often diagnose the condition in racehorses. AF occurs when the organized electrical signals that normally control heart rate and contraction become disorganized, causing a rapid and erratic heartbeat. Horses can survive for years with AF, but the condition often causes poor performance.

Traditionally, veterinarians have treated AF with quinidine, a drug that can reverse irregular heartbeat in about 85% of treated horses. The drug has several possible side effects, however, including gastrointestinal problems, low blood pressure, and even sudden death. For horses that don't respond well to quinidine, or that have had AF for several years, TVEC may be a better treatment option.



Dr. Bruce Kornreich stands with On-Star the horse.

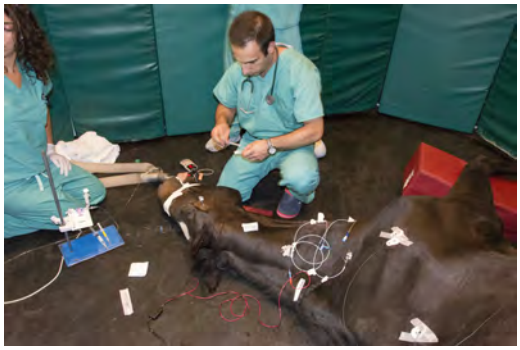
TVEC works just like the paddles of a defibrillator that doctors routinely use on humans, and even make the horses "jump" from the muscle spasm. In horses, however, the thick chest muscles and lungs make it impossible to shock the heart from the outside, so instead, veterinarians place 3-foot long catheters tipped with electrodes into the heart via the right jugular vein.

"The most difficult part of the procedure for us is to guide the catheter," says Pariaut. "In horses it's a long path to the heart from the outside." After sedating the standing horse, they carefully maneuver one catheter into the right atrium, while a second continues its journey down into the right ventricle and up into the pulmonary artery. They use a cardiac ultrasound to monitor their progress and then perform an x-ray to verify that the metal electrodes are sandwiching the right atrium. Finally, they anesthetize the horse, stand back, and apply a carefully timed electric shock to return the heart to a normal rhythm.

Drs. Roberto Santilli and Romain Pariaut observe catheter placement.

On-Star's procedure took approximately four hours and required a veritable village of clinicians, including cardiologists, internists, radiologists, anesthesiologists, and licensed veterinary technicians. Combined with the expense of the catheters, the initial diagnostic evaluation, and hospitalization, the procedure costs about $3500 to $4,000.

Of course, TVEC carries its own risks, not the least of which are associated with the general anesthesia. With this in mind, Pariaut and Kornreich tried to reduce the amount of time that On-Star was under anesthesia through careful attention to electrode placement. With both TVEC and quinidine, there is also the possibility that horses will spontaneously go back into AF. One recent study found that between one third and one half of horses successfully converted from AF to normal heart rhythm will revert back after treatment. So far, On-Star is doing well and has had no complications.



Anesthesiologist Dr. Manuel Martin-Flores tends to the anesthetized patient.

Generous funding from the Harry M. Zweig Memorial Fund and the large animal medicine and cardiology sections made TVEC possible for On-Star, and for future patients diagnosed with AF. "We expect that offering this technique will draw cases to our hospital, thereby improving our ability to train large animal medicine and cardiology residents and veterinary students," says Perkins. "We are very pleased that On-Star, a member of our teaching herd, could help us move forward in this capacity."

"We're very thankful to everyone involved for their support," says Kornreich. "We are excited to have TVEC available once again, and we hope that we'll now be doing it routinely."

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Cardiology team saves street dog from deadly heartworm condition

Monday, September 11, 2017 - 12:57pm

Flyer, a mixed breed dog, has been rescued twice this year: once from Jamaican streets by a Canadian charity and a second time by a team of veterinarians at Cornell University's Hospital for Animals (CUHA).

Flyer is a Potcake, the name given to feral Caribbean dogs with cocked ears who were traditionally fed the caked remains of a rice and pea dish. Flyer lived on the streets and in a sanctuary until Allison Shalla, co-president of Eastern Ontario Potcake Rescue, brought him back to Ottawa last February. Not having received any heartworm prophylaxis, Flyer began taking medication when tests on Valentine's Day indicated heartworm disease.

SERIOUS SYMPTOMS

Two weeks later Flyer became lethargic and produced rusty- colored urine, the telltale sign of caval (pronounced CAVE-uhl) syndrome: heartworms lodged in the vena cava (the vein bringing blood to the heart), right atrium and right ventricle. Tangles of worms ensnare and crush red blood cells, releasing hemoglobin, which discolors the urine.

Flyer is a Potcake, a mixed breed of feral dog found in the Caribbean islands.

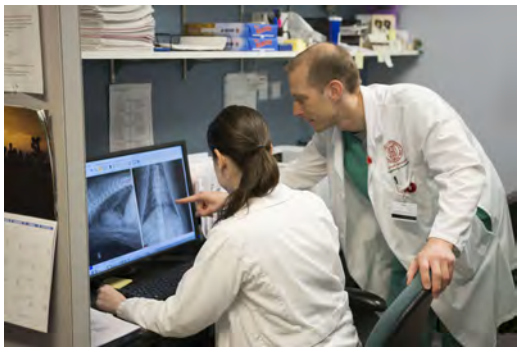
Heartworms cause one of the most serious parasitic diseases for North American dogs; the disease has also been found in South America, Australia, the Middle East, and parts of Europe and Asia. An infected mosquito bites a dog (or less commonly, a cat) and injects larvae under the skin. Larvae grow for a few weeks, enter a blood vessel, and flow to the pulmonary arteries after traveling through the right side of the heart. Being too large to enter the lung capillaries, they usually remain in place, increasing the likelihood of pulmonary hypertension (high blood pressure in the lungs) and congestive heart failure. A female worm can grow up to a foot long, resembling spaghetti. The shorter male has a corkscrew tail.

Dr. Romain Pariaut, associate professor of cardiology at CUHA, says that caval syndrome is rare in the Northeast. Winter temperatures usually kill mosquitoes, resulting in fewer heartworm cases than in the southern states. In the past 18 months at Cornell, Pariaut has seen only three cases of caval syndrome.

Flyer's new owner Shalla sought help outside Ontario because, as she explains, "Our vets here, including our emergency clinic, didn't have the staff available to deal with caval syndrome." So they arranged for surgery at CUHA. Patients with Flyer's condition can die within two days if the worms are not extracted.

Surgery is risky, Pariaut explains, because dogs with caval syndrome have trouble breathing and are unstable, with poor cardiac output and blood flow. "Basically, they are the worst candidates for anesthesia," says Pariaut. "Unfortunately many dogs will not make it through the surgery."

Luckily for Flyer, Pariaut gained experience fishing for heartworms during his seven years at Louisiana State University. Then he returned to Cornell, where he had completed his residency 12 years earlier.



Dr. Romain Pariaut examines a radiograph with a colleague.

HEART FISHING

On Sunday, April 2, CUHA's team of eight (including residents, Drs. Oxford, Giacomazzi, Porter, and Tseng, and student Austin) began a surgery that lasted for several hours. Pariaut made an incision in the jugular vein, then inserted into the cranial vena cava a sheath with a "basket" inside. When opened, the

instrument resembled a wire whisk with several oblong loops at the end. Guided by live fluoroscopic and ultrasonic images, Pariaut's team went fishing in the heart. They'd wait for about 30 seconds, pull the basket out to see how many they caught, then go back in. Breaking even one worm could have caused Flyer to go into shock and possibly die.

Their total catch? 86 worms.

Cardiology resident Eva Oxford DVM'12

"It was a good example of teamwork," says Pariaut, describing how three services—cardiology, anesthesiology, and diagnostic imaging—helped each other.

Two days after the surgery, Flyer returned to Ottawa and continued medical treatment to eliminate worms remaining in the pulmonary arteries. Shalla recently reported, "his only complaint is the crate rest, but he is very patient." Reducing physical activity during the recovery months decreases the possibility of dead worm fragments causing blockage in the pulmonary arteries.

According to the American Heartworm Society, heartworm infection is on the rise nationally, partly because pet owners skip doses or don't administer preventive medications. Pariaut says it's good for the public to be reminded about heartworm disease. Owners should give preventive medication year-round. If heartworm disease is diagnosed, advises Pariaut, start medical treatment to eliminate the worms as quickly as possible.

Flyer recovers from his surgery in his crate.

Cornell University
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College clinicians mend, release injured bobcat

Wednesday, August 16, 2017 - 2:08pm

In April, Cornell University's Janet L. Swanson Wildlife Health Center (WHC) admitted a young male bobcat after he was hit by a car in Lansing, N.Y.

After receiving a call from a witness to the accident, WHC wildlife veterinarians worked with officers from the New York State Department of Environmental Conservation and a nuisance wildlife control operator to capture and transport the bobcat to the WHC.

When he arrived, the bobcat was in critical condition and required several days of care to stabilize his

condition and allow bleeding in his lungs to resolve. He was also diagnosed with a severely fractured humerus (a bone in the forelimb) and a hip that had been moved far out of the joint.

Dr. Ursula Krotscheck, chief of small animal surgery at the Cornell University Hospital for Animals evaluated the bobcat and radiographs of his forelimb fracture. The bone was fragmented into numerous pieces, and she determined

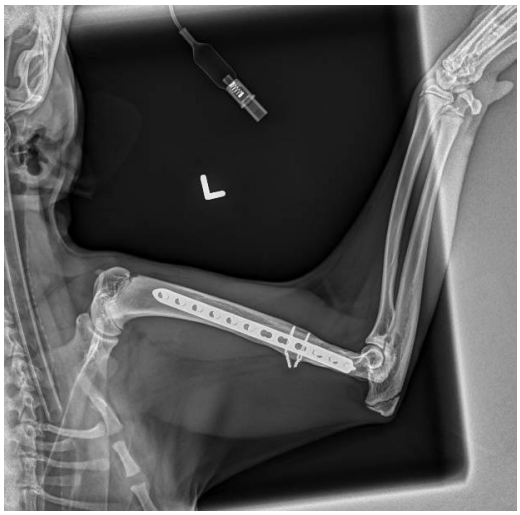
A radiograph shows the extent of the bobcat's injuries.

that a metal plate was necessary to bring together the pieces and give the bobcat the best chance of healing.

Donating her time, equipment, and expertise to the WHC, Krotcheck spent several hours performing the grueling procedure, challenged by anatomy that was different from her normal domestic patients, and by a fracture that was extremely difficulty to repair. After a few more days of recuperation, the bobcat underwent another surgical procedure by Krotscheck, in which his severely dislocated hip was addressed. WHC veterinarians continued to provide the bobcat with supportive care and aggressive pain control for the next several days, until the rehabilitation phase of his care could begin.

The bobcat was transferred to licensed wildlife rehabilitator Cindy Page, who owns the Page Wildlife Center in Manlius, N.Y. Page, who has decades of experience rehabilitating wildlife, housed the bobcat in a small area at first to restrict his activity and allow the bones to heal. He was given privacy but remained secretive, wary of humans and aggressive when approached. After approximately 10 weeks of rest and healing, he was returned to WHC for a checkup.

The results of the recheck radiographs were stunning: a beautifully healed fracture with perfect alignment. An exam showed good range of motion of the injured hip as well. He had grown, gained weight and was in excellent condition. As he recovered from anesthesia in a large dog crate, his release plans were solidified for the following day.



A radiograph showing the now-healed bones.

With assistance from Todd Bittner, director of natural areas for Cornell Botanic Gardens, a large nature area near his original home range was chosen. At noon on Friday, July 28, the door of his crate was opened, facing out onto a beautiful sunny meadow, while all of those involved in the bobcat's care silently looked on.

Among the onlookers were many of the people that had been involved with the various stages of his recovery – a representation of the multitude of steps and stages that native wildlife such as this bobcat must go through when ill or injured between when they are found and when they are released. Despite the open door, the bobcat hunkered down toward the back of the carrier, apprehensive and unsure.

With some coaxing and gentle tipping of the carrier forward, he finally made a break for it – shooting out of the carrier like a bolt of lightning, across the meadow towards a large area of dense forest.

The Janet L. Swanson Wildlife Health Center is a nonprofit organization that provides state-of-the-art medical and surgical care for wildlife native to New York state with the goal of releasing them back to the wild. For additional information and to donate

The healed and rehabilitated bobcat pauses at the edge of its crate before returning to the wild. Photo credit: Melissa Groo.

funds to support the Center's work, please visit http://vet.cornell.edu/hospital/services/wildlife/.

Watch the bobcat's full journey here:

Cornell University
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Meet the new CUHA House Officers

Dr. Yike Bing

Resident, Medical Oncology

Dr. Christophe Bourguignon

Resident, Cardiology

Dr. Michelle Coady

Resident, Small Animal Emergency & Critical Care

Dr. Esther Crouch

Resident, Anatomic Pathology/WCS

Dr. Rebecca Eddy

Resident, Exotics, Zoological & Wildlife Medicine

Dr. Jennifer Higgins

Intern, Small Animal Rotating Internship

Dr. Arden Klinczar

Intern, Small Animal Rotating Internship

Dr. Courtney Korff

Intern, Small Animal Rotating Internship

Dr. Brittany Kunz

Resident, Small Animal Medicine

Dr. Rachael Labitt

Resident, CARE Lab Animal Medicine

Dr. Daniel Lopez

Resident, Small Animal Surgery

Dr. Lauren Leudke

Resident, Large Animal Surgery

Dr. Christina McCullough

Intern, Exotics, Zoological & Wildlife Medicine

Dr. Phillip Mick

Intern, Small Animal Rotating Internship

Dr. Erika Militana

Resident, Anesthesiology

Dr. Adam Miller
Resident, Small Animal Medicine

Dr. Julia Miller
Resident, Dermatology

Dr. Shana Mintz
Resident, Cardiology

Dr. Ileana Miranda
Resident, Anatomic Pathology

Dr. Anna Mitchell
Resident, Theriogenology

Dr. Laia Reig Codina
Intern, Large Animal Surgery

Dr. Renato May Rossi

Resident, Ambulatory & Production Medicine

Dr. Lindsey Schneider

Resident, Dentistry & Oral Surgery

Dr. Laura Scoda

Resident, Neurology

Dr. Megan Stapleton

Intern, Shelter Medicine

Dr. Jason Tarricone

Intern, Small Animal Rotating Internship

Dr. Lucy Underwood

Intern, Medical Oncology

Dr. Meagan Wentworth
Intern, Shelter Medicine

Dr. Justin Whitty
Resident, Imaging

Dr. Timothy Wu
Resident, Anatomy Pathology

Dr. Hajeong "Vincent" Yoon
Intern, Small Animal Rotating Internship

Dr. Qui Di Zheng
Intern, Ambulatory & Production Medicine

Not pictured:

Dr. Stacy "Hondo" Caffey: Intern, CRES

Dr. Sacha Devereux: Intern, Small Animal Rotating Specialty Internship

Dr. Barbara Devescovo: Resident, Large Animal Medicine

Dr. Cynthia Hopf: Resident, Zoological Medicine

Dr. Christina Mazulis: Resident, Dermatology

Dr. Tate Morris: Intern, CRES

Dr. Sarah Robbins: Resident, Small Animal Emergency & Critical Care

Dr. Bernadette Smith: Intern, CRES

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Clinical T rials

Thank you for your interest in our research studies. Our mission is to provide and deliver the highest level of medical care, concern and commitment, professionalism, and scientific expertise to our patients.

Canine

Oncology (Cancer)	Investigating a New Drug for Osteosarcoma
	Lymphoma: Banking Lymph Nodes
Anesthesia and Pain Management	New! Using a Prototype Device to Deliver Pain Medications for Dogs with Cancer
Neurology	New Pain Medication for Dog Having Back Surgery
Imaging	New! Utilizing Imaging to Study New Ways to Diagnose Degenerative Myelopathy
Emergency/Critical Care	Treatment of Dogs with Immune-Medicated Hemolytic Anemia (IMHA)
	Outcome of Trauma in Emergencies
	New! Evaluation of StablePlate Rx in Thrombocytopenic Canine Patients
	New! Treating Bleeding Due to Trauma Using a New Drug
Sports Medicine/Rehabilitation	Utilizing a Collar to Monitor Pain and Activity in Dogs with Osteoarthritis
	Using Platelet Rich Plasma to treat Dogs suffering with Arthritis and Lameness in One Knee

Feline

Oncology (Cancer)	Developing a New Treatment for Cats with Injection Site Sarcomas
Genetics	Using Healthy Senior Cats as Controls for Genetic Mapping
Dentistry	On Hold Treatment for Cats with Non-Responsive Stomatitis
Emergency/Critical Care	New! Studying Feline Sepsis in Emergency Situations
Microbiology and Immunology	Understanding the genetics of Feline Infectious Peritonitis (FIP)
Cornell Feline Health Center	Feline Tick/Lyme Disease Surveillance Program
	Investigating a New Class of Anti-cancer Drugs for Mammary Cancer

Equine

	No Studies at this time

Exotics

Rabbit	Determining the Best Treatment for Rabbits with Gastric Outflow Obstruction